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NOTE ON THE DISCOVERY OF REPRESENTATIVES OF THREE ORDERS
OF FOSSILS NEW TO THE CRETACEOUS FORMATION OF NORTH
AMERICA.

BY W. M. GABB.

It is not often, in a subject so long and so thoroughly worked over as has been the palæontology of the American cretaceous formation, that a student has the good fortune to discover at the same time the first representatives of three orders previously unknown. In a little lot of fossils from the "Timber Creek" or yellow limestone beds of the neighborhood of Vincenttown, New Jersey, recently found by Miss Frances H. Bryan, and presented by her through her father, Col. T. M. Bryan, to the Academy, I find the stem of an undescribed *Pentacrinite*, the first crinoid of the formation in the United States, and a number of plates of the first American cretaceous star-fish. In view of the unusual interest attached to these discoveries, I shall depart from the rule I have followed for several years, of abstaining from the description of isolated species and from imperfect material, and give the following brief diagnoses, in the hope of stimulating the search for these objects, thereby rendering our knowledge of them more complete:—

Pentacrinus Bryani, n. s. Pl. 5, figs. 1, 1a, 1b.

Known only from two fragments of the stem, one consisting of seven joints, the other of eight or nine. Stem distinctly pentangular, angles rounded; segments alternating, each alternate one more and less constricted in the longitudinal grooves. The less constricted segments are concavely rounded on the sides, while their alternates are cut on each side by a deep, acute indentation, giving them the appearance, as seen from above, of flowers with five rounded petals. Lateral surface of the segments convex and smooth; articular face slightly raised on the margin and radiately denticulate.

In style, this stem is nearest to *P. scalaris*, Goldf., from the Oxford, especially that form figured in Petr. Germ. Pl. 52, f. 3, b; but the angles are more rounded, and the flower-like appearance of the articular face of the segment is more marked.

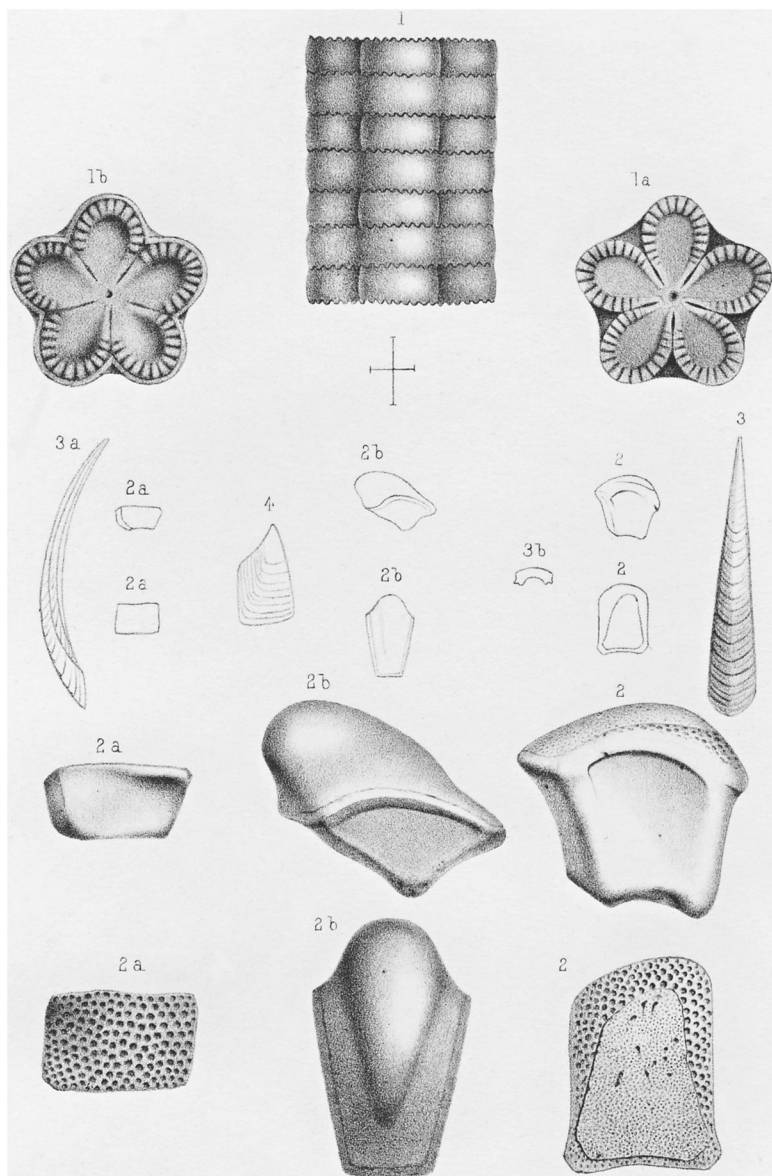
Goniaster mammillata, n. s. Pl. 5, figs. 2, 2a, 2b.

About thirty marginal plates occur in the collection, some of which resemble in form those of *G. (Ast.) quinqueloba*, Goldf.,

Petr. Germ. Pl. 63, f. 5, b, c, d, except that they are somewhat shorter and thicker, and the pointed extremity is replaced by one truncated nearly straight across. But the most marked peculiarity of the present species lies in several marginal plates in the collection, corresponding with Goldfuss's fig. *e*. These are longer and narrower in form, and each bears on the end of the plate, which is acute in the European species, an elongated rounded protuberance, projecting beyond the end of the plate and overhanging it. Other smaller plates, about one-half longer than wide, are thinner, but retain the superficial outline of the first mentioned.

From the size of the plates, our species seems to be nearly of the same size as that with which I have compared it; but the difference in form, and the great rounded protuberance on the long plates, reversing the relative thickness of the two ends, will at once distinguish them.

Since writing the above, I have received from Col. Bryan another little fossil, so akin to the present subject that I add it. No Cirripedes have been reported from the American cretaceous, and his fossil is the carinal plate of a *Scalpellum*. On showing it to Mr. Conrad, he recognized it as being similar to a fragment in his possession from New Jersey, also from the white limestone, but of which the exact locality is unknown. Through the kindness of these two gentlemen, therefore, I have the means of making known the species, the more especially since Mr. Conrad's carina is accompanied also by a scutal valve of the same animal. The carina (figs. 3 and 3*a*) is large, indicating a size of about an inch and a half in length of the animal, without the stem. It has nearly straight sides, is very gently curved; external surface nearly flat at the upper part and rounded subangular below in the median line. Upper end acute, base rounded; inner face deeply concave; sides bearing a prominent linear rib which marks the three parts of surface into which Darwin divides this plate. This will be better understood by a reference to the cross-section, Pl. 5, fig. 3*b*, made across the middle of the plate. The scutal plate (fig. 4) is nearly straight on its occludent margin; the tergal margin is strongly sloping and a little concave at the apical portion; the base is straight or very slightly convex. The surface is slightly angulated, and marked by strong lines of growth. I propose for this rare fossil the name of *S. Conradi*, in recognition of the donor of the greater part of the material from which the description is drawn.



Illustrated by the Barton Fund.

Gabb on New American Cretaceous Fossils.